BRITISH HONDURAS

ANNUAL REPORT

OF THE

Department of Agriculture and Fisheries

FOR THE YEAR

1967

COMMONWEALTH MYCOLOGICAL INSTITUTE
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DEPARTMENT OF AGRICULTURE AND FISHERIES

ANNUAL REPORT

For the year ended 31st December, 1967

I. INTRODUCTION

POLICY

The basic policy of the Department remained essentially the same, namely:-

(1) To obtain the maximum degree of self-sufficiency in respect of all crops and livestock products that can be economically produced within the country.

(11) To improve the quality, quantity and range of export crops.

(111) To develop the livestock industry and promote an export trade in the products thereof.

(1V) To further develop the fishing industry and expand the range of export production.

(V) To conserve the natural resources.

(V1) To promote farming as a way of life based on a sound system of Agriculture.

(V11) To ensure the fullest possible integration between skill and capital input and indigenous farmers, and that national farmers participate actively in the agricultural development of the country.

Most of the conditions inhibiting development continued in being - poor communications, small internal market and the lack of investment capital and skills. Some of the effects of the Rural Land Utilization Tax were, however, becoming apparent, such as increased interest by land owners in either developing their lands or disposing of them, this in turn led to much thought on economic land development particularly how to recoup the heavy cost of clearing high forest lands. Renewed and growing interest has, as one aspect of this situation, been shown in the relatively infertile pine ridge lands which neither attract the Rural Land Utilization Tax nor require much capital to bring into a cultivable state. All in all 1967 was a year of stock taking, a year of seeking for the ways and means to effect development and accordingly there was less active development than usual.

GENERAL REVIEW

1967 was more favourable to agricultural production than the previous year, nevertheless rigid adherence to planting by calendars and lunar phases caused severe crop failures, with the dry season prolonged well into June. Maize and to a lesser extent rice crops were the most seriously affected. Sugar production increased to 58,320 tons not as high as hoped for, but the depressed World Market price for sugar on which any increased production had to be sold was a marked deterrent to increased plantings. Citrus production remained fairly static with prices comparatively depressed. Both rice and maize were in short supply and the need for greatly increased production at low cost, indicates a need to move away from milpa production to mechanised farming on comparatively large acreages.

II. WEATHER

The pattern of weather conformed more or less to the norm, the dry was prolonged into June, good burns were obtained. No exceptionally heavy rains were reported and total rainfall was much reduced in most areas from the wet conditions of 1966. Punta Gorda Town in the South recorded 127.09 inches compared with 150.55 inches in 1966. Yo Creek in the North a total of 38.86 inches compared with 70.82 inches in the previous year.

III. LIVESTOCK INDUSTRY

Although there was ample evidence that many individual herds had expanded, there was little if any signs of increase in pastures. The high cost of clearing heavily forested lands and establishing pastures, together with the prevailing prices of -/18cents per lb liveweight on farm were not conducive to investment. The national herd was estimated at 34,000 head but in view of doubts as to the true position a census was planned for early 1968.

The Department imported further breeding stock from Jamaica, and private concerns imported a number of Brahman bulls from the U.S.A. The Department continued to supply quality bulls to farmers at heavily subsidised rates, but the supply fell far short of the demand.

A fully automatic milking parlour provided by the City of York, England through Freedom from Hunger Funds came into operation during the year.

The Livestock Association which has expended several lives already came into being during the year and stimulated by the problems confronting the industry shows signs of developing into a useful organisation.

(b) Statistics of cattle and pigs slaughtered during 1967 were as follows:-

District	No.	Cattle dressed wt. lbs.	Av. dressed wt. lbs.	No.	Pigs dressed wt. lbs.	Av. dressed wt. lbs.
Belize	3,262	843,336	259	4,006	283,089	70.6
Cayo	589	118,969	202	286	23,705	82.08
Corozal	264	57,042	216	155	10,850*	-
Orange Walk	498	124,500	-	354	20,397	57.6
Stann Creek	140	40,793	291.3	69	5,105	73.9
Toledo	51	12;869	252	177	10,562	60
Whole Country	4,804	1,197,509	248	5,047	353,708	70.7

(c) The abattoir started in 1966 is yet not completed, and indications are that it will be some time before work will be started again.

(d) Exports of live cattle, pigs, sheep and poultry to Mexico were of considerable importance and offered a good outlet at better than local prices. Exports and value are as follows:-

		Value
Cattle	950 head	$99,441.90
Pigs	1,752 head	92,438.41
Eggs	34,210 dozen	21,577.09
Sheep	91 head	517.00
Poultry	45,312 lbs	20,286.68

(e) Animal Husbandry and Pasture Work

The piggery at Central Farm was expanded by the addition of seven new pens to the main piggery and two additional pens to the weaner section. Arrangements were in hand to construct four outdoor farrowing - rearing pens; and to expand the breeding herd to eight large white sows, eight Hampshire sows and four Hampshire - large white cross sows. Units at Yo Creek, Stann Creek and Toledo through the year have performed useful work in making stud boars available to farmers. All units have maintained good standards during the year and sales of breeding stock are on the increase.

(Jaragua) The 119 acres of Jaragua at Central Farm was burnt in March after having seeded in November, because of intermittent rains it was not possible to burn immediately after seeding and grazing. In December the same pasture was bush-hogged after seeding. There fields were grazed four times during the year.

(Pangola) This grass continues to do well under good management. It has been shown that pangola is overtaken by weeds and other undesirable grasses when heavily grazed continuously.

(Coastal Bermuda) This five acre block did well during the year. Two applications of fertilizer were made. The first one being 50 lbs urea per acre, and secondly 112 lbs sulphate of ammonia per acre.

A 50 acre block was planted in Elephant, Bluestem, Guinea, Carib, Pangola, Jaragua and Coastal Bermuda. The block was divided into two with Elephant, Guinea, Bluestem and Carib on one side and Pangola, Jaragua and Coastal Bermuda on the other side.

The Pangola, Coastal Bermuda, Elephant and the Carib did well from the beginning. The others started to show signs of coming up after they were sprayed with a mixture of 2-4D and 2 4-5T to control weed competition.

The Guinea grass came out sparingly, it seemed as if rain had washed away the seeds. Carib has given the best results, further trials are being carried out.

(f) Importation of Cattle

The Department imported from Jamaica the following stock:

2 Brahman Bulls
2 Red Polls
2 Jamaican Blacks
1 Charolais Cross.

The only other importation during the year were of 6 Brahman bulls by private enterprise.

IV FOOD CROPS

Beans - Red Kidney

Year	Acreage	Est. Production (000 lbs)	Marketing Board Purchases (000 lbs)
1962/63	1,587	1,269	747
1963/64	1,810	905	483
1964/65	1,884	1,507	584
1965/66	3,484	2,787	592
1966/67	2,219	1,667	409
1967/68	4,013	2,809	545

Cayo District reported good seed germination, with an average yield of 600-700 lbs/acre; a few fields suffered from leaf fungus. In Belize District, Offshore Growers land previously planted to Cucumbers was planted out with beans, a poor quality crop resulted, this was due to severe water stress before the crop matured. Early in the year the Department carried out fertilizer variety trials on farmers lands in each of the Districts. In Toledo District only 50 acres was planted, compared to 364 in 1966, this was due to the high cost of seeds, little and few seed loans. Orange Walk planted the largest acreage this year - 2,227acres, compared with 1,535 in 1966. Total acreage was made up as follows:-

Cayo	1,490
Stann Creek	25
Belize	200
Toledo	50
Corozal	21
Orange Walk	2,227
	4,013 acres

Maize

Year	Acreage	Est. Production (000 lbs)	Marketing Board Purchases (000lbs)
1963	13,331	6,655	228
1964	11,383	9,107	776
1965	13,390	12,051	256
1966	15,506	6,742	36
1967	14,890		

Total acreage was made up as follows:-

Stann Creek District	102
Cayo	3,774
Belize	1,882
Toledo	1,819
Corozal	710
Orange Walk	6,603
	14,890

The delayed onset of the rains resulted in the failure of many acres of corn planted in accordance with traditional calendars and lunar phases. Thus for the second year running corn was in short supply with prices on farm of up to -/08¢ per lb. Increasing interest was shown in the hybrid Poey T66 which seems well adapted to local conditions.

(c) Rice

Year	Acreage	Est. Production Paddy (000 lbs)	Marketing Board Purchases Paddy (000 lbs)
1963/64	3,131	4,695	2,718
1964/65	3,918	5,877	4,508
1965/66	6,381	7,657	5,230
1966/67	4,578	3,130	2,648
1967/68	5,130	8,146	5,958

Toledo District, the main rice producing area in the country sold a total of 2,317,432 lbs of paddy to the Marketing Board. The rainfall pattern was favourable for the preparation, burning and planting of rice, however farmers experienced some difficulties in harvesting, because of the rains in October and November. The use of fertilizers and weedicides in the fields is fast becoming standard practice, 24-D,Shell 40 and Trixone 50 have been used by many farmers. The early varieties of rice suffered heavily through bird damage. In Belize District Tennessee Agriculture Ltd. cultivated some 450 acres to rice during the year. Big Falls cleared 500 acres for irrigated rice production with main harvesting February/April. During 1967 the Marketing Board purchased a total of 2,672,435 lbs of paddy.

Ve, etables

The local vegetable growers have not yet been able to place a constant supply of fresh vegetables on the market. As in 1966 short lived gluts of local produce with importation the general rule has been the pattern throughout the year. The regular floods which is a common occurrence along the Sibun River took their toll of farmers vegetables during the year. One farmer in the Belize District, embarked on mechanical cultivation of vegetables, this he demonstrated to the other farmers of the area at a field day. His project was successful but unfortunately he had to sell out and return to the U.S.A.

APPENDIX I

Senior Staff Postings as at 31st December, 1967

Title	Name	Station
Chief Agricultural Officer	E.W.King	Belize City
Principal Agricultural Officer	H.D.Matheson	Central Farm
Ag. Agricultural Education Officer	G.C.Ellis	Central Farm
Plant Pathologist	J.E.Link	Central Farm
Veterinary Officer	P.T.Hill	Central Farm
Agronomist	N.E.Wade	Central Farm
Livestock Officer	O.O. Orio	Central Farm
Agricultural Engineer	J.B. Hutchinson	Central Farm
Entomologist	J.D.McCrae	Central Farm
Veterinary Field Officer	F.F.Orio	Belize City
Agricultural Officers	R.S.Pitt	Corozal
	G.C.Aguilar	Orange Walk
	A.L. Navarette	Stann Creek
Farm Planning Officer	P.R.Lizarraga	Toledo
Asst. Agricultural Officers	C.D.Atkins	Belize City
	T.L.Brackett	Orange Walk
	W.A.Grant	San Ignacio
	T.T.Ramos	Toledo
	W.J. Baeza	Corozal
	N.E.McKenzie	Central Farm
Fisheries Officer	C.G.Rosado	Belize City
Fish and Food Processing Officer	N.E.Wade	Belize City

APPENDIX NO II.

SUMMARY OF RAINFALL 1967

DISTRICT AND STATIONS	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	Total 1967	Total 1966	Average 10 yrs.
COROZAL DISTRICT															
Corozal Agstat	6.13	.60	.40	5.04	Nil	3.72	9.63	8.21	7.08	6.74	3.41	1.60	52.56	69.05	54.05
Libertad	5.08	Nil	.70	2.62	.03	5.22	8.25	3.35	7.85	5.10	2.83	1.76	42.85	67.35	51.35
San Roman Cane Station	4.30	.77	.41	3.76	.01	6.65	9.63	2.40	6.44	4.02	3.34	1.66	43.39	71.73	N.A.
ORANGE WALK DISTRICT															
Hill Bank	4.51	.73	3.23	3.80	Nil	5.47	11.11	8.36	4.41	9.58	1.66	4.50	56.64	63.24	N.S.
Yo Creek Agstat	2.35	.81	1.36	1.18	Nil	2.72	6.16	2.27	7.46	7.16	2.95	3.64	38.86	70.28	N.S.
BELIZE DISTRICT															
Landivar, Belize City	4.09	1.58	1.42	1.76	.56	2.71	10.54	3.75	7.36	14.73	9.01	5.44	62.95	82.29	N.A.
Belize Int'l Airport	5.90	1.62	2.27	2.61	.47	5.78	11.43	5.60	5.68	11.97	7.49	4.24	65.06	95.39	67.39
Gracie Rock	5.70	3.82	1.14	2.95	.09	5.48	10.58	5.03	3.84	8.69	6.04	4.00	57.36	81.92	67.60
Maskall	4.34	2.06	.60	6.24	.20	3.73	8.70	7.39	9.67	5.73	7.39	3.53	59.58	80.00	62.29
Big Falls	2.74	2.68	3.45	.86	.18	4.13	10.37	8.72	5.24	7.99	6.19	2.04	54.59	68.88	N.S.
Ambergris Caye	3.02	1.50	.71	3.28	.41	2.84	7.40	1.91	6.88	7.82	6.28	9.87	51.92	75.92	N.S.
CAYO DISTRICT															
San Ignacio Town	5.16	3.77	1.27	2.27	.79	5.47	7.56	6.21	6.71	8.36	9.43	3.58	60.58	63.47	N.A.
Benque Viejo	3.77	1.77	1.50	1.04	2.96	10.91	6.14	6.30	9.25	6.89	6.94	3.27	61.74	33.19	N.A.
Central Farm	4.45	2.60	1.80	.85	1.94	4.08	7.63	6.75	3.75	6.01	8.03	3.86	51.75	60.27	59.13
Norland	4.37	4.16	.95	.92	1.55	5.00	8.29	7.17	2.84	5.20	9.32	2.76	52.53	62.05	59.77
Augustine Mountain Pineridge	4.89	1.51	2.43	3.16	.74	6.18	3.50	6.29	3.79	12.03	7.89	2.56	54.97	63.93	62.20
Cooma Cairn	7.89	4.18	1.68	3.04	1.97	7.58	7.24	7.89	6.55	12.16	11.90	3.57	75.65	102.14	N.A.
Mai	4.38	2.32	1.89	1.08	1.17	4.94	5.28	7.85	3.23	7.40	13.31	3.50	56.35	71.88	N.S.
Sibun Hill	6.29	3.83	2.10	3.08	2.48	8.01	15.46	9.91	9.33	18.46	20.12	6.04	105.11	91.15	N.S.
STANN CREEK DISTRICT															
Stann Creek Agstat	6.05	2.61	1.78	5.01	.56	4.99	9.07	12.54	6.86	9.03	11.93	8.38	68.81	99.16	83.66
Pomona	6.53	3.72	1.64	5.59	.72	6.32	9.10	13.04	5.09	9.60	11.82	6.33	79.50	108.42	93.72
Melinda Farm	5.71	2.24	1.91	3.48	.32	2.59	7.57	8.92	7.15	4.07	12.03	N.A.	N.A.	88.14	N.A.
Middlesex	7.16	5.51	1.26	6.35	1.12	5.91	17.93	20.45	6.86	9.41	8.28	4.31	92.55	121.50	106.83
Savanah Forest Station	3.69	3.83	4.29	2.12	1.82	4.61	N.A.	N.A.	N.A.	14.32	N.A.	N.A.	N.A.	94.06	N.A.
Melinda Forest Station	5.62	2.37	1.41	3.31	1.02	5.30	9.30	8.82	2.57	5.41	9.24	4.90	59.27	84.88	N.A.
Cabbage Haul	6.46	N.A.	1.93	2.70	1.01	9.44	12.06	15.60	2.99	12.82	N.A.	N.A.	N.A.	N.A.	N.S.
Sittee River	6.81	2.14	.70	5.00	1.84	1.91	7.51	N.A.	10.04	7.92	N.A.	N.A.	N.A.	N.A.	N.A.
TOLEDO DISTRICT															
Punta Gorda Town	7.06	2.77	3.91	4.16	1.95	2.67	15.73	14.04	17.08	17.08	12.19	5.84	104.48	157.75	155.22
Toledo Agstat	6.88	3.50	7.16	2.66	.60	13.65	34.29	16.06	8.80	13.49	14.65	5.35	127.09	150.55	148.10
San Antonio	2.34	4.18	5.38	N.A.	N.A.	13.38	43.20	2.61	N.A.	N.A.	N.A.	N.A.	N.A.	69.63	N.A.
Barranco	5.01	3.08	6.04	2.34	4.71	7.93	25.96	N.A.	34.76	2.96	4.99	4.81	N.A.	123.38	N.A.
Machaca Forest Station	8.20	3.33	10.11	4.62	.85	14.20	26.20	13.51	13.68	8.29	12.52	6.81	122.32	128.46	126.41
Monkey River Town	15.24	2.41	.27	1.17	2.00	3.90	3.48	6.55	5.10	8.89	7.38	1.75	58.14	145.71	N.A.

APPENDIX NØ III.

METEOROLOGICAL DATA 1967

MEAN MONTHLY TEMPERATURE

	Belize Int'l Airport	St. John's College (Landivar)	Agstat Yo Creek	Agstat Stann Creek	Agstat Toledo	Augustine Mountain Pineridge	Melinda Forest Station	Ambergris Caye	Cooma Cairn	Mil Forest Station	San Ignacio Cane Station	Central Farm Cayo	Savanah Forest Station	Cabbage Haul	Sibun Hill
January	80.8	80.5	89.2	80.0	N.A.	75.2	96.2	84.9	67.7	74.1	80.0	80.6	77.5	82.8	68
February	82.5	83	88	81.0	N.A.	N.A.	91	86	N.A.	N.A.	82.8	82.3	N.A.	N.A.	N.A.
March	82.5	84.8	89.6	83.4	N.A.	82.6	85.5	88.6	74.0	82.0	N.A.	86.0	84.4	80.9	72.6
April	86.0	86.0	90.4	84.0	N.A.	85.9	85.7	N.A.	77.9	86.5	85.6	87.4	84.7	83.0	76.5
May	89.2	88.7	92.9	87.2	N.A.	89.4	88.5	N.A.	81.8	91.5	87.8	93.0	N.A.	N.A.	80.4
June	N.A.	84.0	90.8	88.0	N.A.	88.9	89.7	91.1	81.0	89.7	88.3	89.6	N.A.	84.1	80.2
July	N.A.	86.8	89.3	87.0	N.A.	86.1	85.0	91.7	76.0	85.0	89 0	86.4	N.A.	80.4	75.0
August	N.A.	88.7	90.3	87.0	N.A.	85.0	88.0	91.5	78.0	85.0	88.0	88.8	N.A.	85.0	85.0
September	89.0	88.0	92.6	88.0	N.A.	85.8	91.1	N.A.	80.1	86.1	86.0	90.6	N.A.	N.A.	81.4
October	N.A.	85.2	88.4	90.5	N.A.	78.0	87.8	90.8	74.0	82.0	N.A.	86.0	N.A.	N.A.	75.0
November	N.A.	82.2	88.7	90.0	80.9	76.0	84.0	86.3	68.0	74.0	N.A.	82.7	N.A.	N.A.	70.0
December	83.0	83.7	85.4	90.0	N.A.	79.5	85.0	86.5	72.6	N.A.	N.A.	83.8	N.A.	82.4	71.9

MEAN MONTHLY MINIMUM TEMPERATURE

January	64.2	67.7	N.A.	65	N.A.	64.2	59	63.5	56.9	62	N.A.	61.9	70.6	68.3	59
February	65.8	69	N.A.	65	N.A.	N.A.	67	71.0	N.A.	N.A.	N.A.	63.9	N.A.	N.A.	N.A.
March	68.5	72.7	N.A.	67.2	N.A.	64.0	68.4	76.0	62.8	62.5	N.A.	63.1	75.1	67.8	62.1
April	72.7	75.9	N.A.	70.0	N.A.	64.9	71.4	N.A.	65.5	65.8	N.A.	66.2	82.4	67.9	62.9
May	75.4	78.0	N.A.	73.5	N.A.	74.4	73.9	N.A.	67.1	69.4	N.A.	67.8	N.A.	N.A.	63.6
June	N.A.	77.1	N.A.	79.0	N.A.	75.7	72.3	77.9	67.5	75.7	N.A.	71.0	N.A.	71.6	63.7
July	N.A.	76.0	N.A.	73.0	N.A.	79.0	68.0	77.5	66.0	72.0	N.A.	7 .7	N.A.	70.4	64.0
August	N.A.	78.0	N.A.	73.0	N.A.	66.0	73.0	80.0	67.0	68.0	N.A.	70.7	N.A.	71.0	64.0
September	74.0	76.1	76.7	72.0	N.A.	67.9	74.3	N.A.	66.5	68.3	N.A.	70.5	N.A.	N.A.	65.1
October	N.A.	73.0	72.0	70.2	N.A.	65.0	78.0	77.1	64.0	66.9	N.A.	68.8	N.A.	N.A.	62.0
November	N.A.	70.2	N.A.	68.0	55.6	62.0	74.7	71.9	59.0	64.0	N.A.	65.1	N.A.	N.A.	61.0
December	70.0	71.8	N.A.	67.0	N.A.	63.8	76.0	72.8	62.0	N.A.	N.A.	65.2	N.A.	69.2	62.1

APPENDIX NØ III(a)

METEOROLOGICAL DATA 1947

MEAN MONTHLY MAXIMUM TEMPERATURE

	Belize Int'l Airport	Agstat Yo Creek	Agstat Stann Creek	Agstat Toledo	Mountain Pineridge	Forest Station	Station	Station	Station	Gibun Hill	Central Farm Cayo	Savanah Forest Station
January	87	93.3	N.A.	[illegible]	N.A.	92.5	86.3	93.5	87.0	N.A.	83.5	93.0	88.1
February	81	89.6	N.A.	N.A.	N.A.	N.A.	84	N.A.	N.A.	N.A.	79	88	N.A.
March	80	85.8	N.A.	86.6	N.A.	82.0	75.5	78.5	73.0	92	71.0	83.0	72.1
April	79	80.1	N.A.	77.4	N.A.	79.3	74.3	74.7	74.9	N.A.	75.7	74.9	70.4
May	74	72.6	N.A.	N.A.	N.A.	79.6	71.9	70.1	69.0	N.A.	71.3	69.3	N.A.
June	N.A.	86.5	N.A.	86.1	N.A.	88.5	78.1	71.6	77.3	N.A.	72.4	74.0	N.A.
July	N.A.	89.0	87	86	N.A.	87	N.A.	79.3	80.9	N.A.	81	84.7	N.A.
August	N.A.	83.0	88.0	83.0	N.A.	80	80	79	77	N.A.	80	85	N.A.
September	81	82.8	89.0	N.A.	N.A.	80	78.1	78.4	74.9	N.A.	75.5	N.A.	N.A.
October	N.A.	85.3	93	N.A.	N.A.	82.0	73.0	83.8	80.0	N.A.	88.0	86.5	N.A.
November	N.A.	85.4	93	N.A.	90.6	91.0	87.0	90.0	86.0	N.A.	89.0	88.3	N.A.
December	86.0	90.0	93	88.5	N.A.	96.7	91.0	81.2	86.0	N.A.	85.7	91.3	N.A.

MEAN MONTHLY BAR METRIC PRESSURE

	Belize Int'l Airport	Agstat Yo Creek	Agstat Stann Creek	Agstat Toledo	Ambergris Caye	San Roman Cane Station	Savanah Forest Station	Central Farm Cayo	St. John's College (Belmopan)
January	30.00	29.82	30.18	N.A.	29.94	29.32	N.A.	30.12	N.A.
February	30.01	29.83	30.12	N.A.	29.90	N.A.	N.A.	30.08	30.01
March	30.00	29.73	30.18	N.A.	29.97	N.A.	N.A.	30.03	30.00
April	29.96	29.78	N.A.	N.A.	N.A.	29.21	N.A.	29.94	29.97
May	29.92	29.75	30.07	N.A.	N.A.	29.77	N.A.	29.95	30.29
June	N.A.	29.75	30.40	N.A.	29.73	N.A.	N.A.	29.97	29.88
[illegible]	N.A.	29.71	30.15	N.A.	29.88	N.A.	N.A.	30.01	29.92
[illegible]	N.A.	29.71	30.13	N.A.	29.85	29.96	N.A.	29. 7	29.96
September	29.84	29.70	30.00	N.A.	N.A.	29.81	N.A.	N.A.	29.87
October	N.A.	29.5[illegible]	30.11	N.A.	29.81	N.A.	N.A.	29.97	29.94
November	N.A.	29.[illegible]	30.14	29.47	29.87	N.A.	N.A.	30.02	29.98
December	30.00	29.56	30.16	N.A.	29.88	N.A.	N.A.	30.01	29.97

APPENDIX NØ IV

LIST OF AGRICULTURAL EXPORTS

Articles	QUANTITIES 1967	VALUE 1967
		$
Bovine Cattle	964 head	102,002
Sheep and Goats	92 "	652
Swine (live)	1,730 "	91,059
Poultry (live)	12,466 "	21,321
Eggs	33,935 doz.	22,440
Fresh Fish	258,900 lbs.	66,342
Lobsters (tails)	314,600 lbs.	405,759
Shrimp	228,000 lbs.	219,090
Conch	385,500 lbs.	85,979
Fish(dried, smoked or salted)	46,600 lbs.	9,106
Fruits and Vegetables		
Oranges (fresh)	546,500 lbs.	6,567
Tangerine "	600 lbs.	11
Grapefruit "	Nil	Nil
Papayas	Nil	Nil
Plantains and Bananas	152.231 lbs.	151,861
Corn	-	-
Coconuts (whole)	87,300 "	5,545
Other Edibles	10 "	5
Other Fresh Fruits	11,500 lbs.	837
Preserved fruits and nuts	7,300 "	1,943
Fruit & Vegetable Juice		
Unfermented	1,000 "	40
Grapefruit Segments	7,091,400 lbs.	1,465,750
Grapefruit Concentrate	56,500 "	13,191
Orange Concentrate	4,918,700 "	1,122,171
Grapefruit Juice	568,500 "	56,219
Orange Juice	5,513,600 "	639,546
Chicle	113,200 "	106,290
Molasses	18,444 tons	646,462
Unrefined sugar	122,031,800 lbs.	8,018,850
Natural Honey	284,464 lbs.	46,736
Sweet Orange Oil	110,520 lbs.	73,510
Grapefruit Oil	1,404 "	2,506
Orchid Plants	6,300 plants	337
R.K. Beans	512,400 lbs.	67,659
Cabbages	1,600 "	18
Cucumbers	5,672,900 "	94,549
Cocoa Beans (Raw)	16,200 "	9,000
Pepper & Pimento	26,938 "	7,678
Tobacco(Unmanufactured)	26,142 "	23,772

APPENDIX V

CLINICAL TREATMENTS: WHOLE COUNTRY

1967

Condition	Horses	Cattle	Sheep	Pigs	Dogs	Poultry
External Parasites	5	48				
Internal Parasites	46	170	7	38	19	303
Castration	34	52	9	50	13	
Screw Worm	30	89	3	18	20	9
Scours		7		13	4	
Joint Ill	1	5				
Mastitis		10				
Warts		20				
Pneumonia	2	5		17		
Vesicular Stomatitis	8	39		3		
Tetanus		1				
Swine fever vaccination				183		
Distemper	9					18
Coccidiosis						141
Fowl Pox						74
Fowl Typhoid						
Fowl Cholera						7
Coryza						6
Miscellaneous	378	99	4	135	57	295
	513	430	23	457	113	853

APPENDIX NØ VI

EXPORT OF LOBSTER TAILS

July 15 - December 15, 1967

Exports	Pounds Exported	Pounds Declared in Statistics	Percentage Declared	No. of Lobster Fishermen	Av. No. of Fishermen Giving Statistics	% of Fishermen Giving Statistics	No. of Lobster Shipped
Cariboña Producers Cooperative	73,700	16,749	22.73	133	33.25	25.00	138,071
Northern Fishermen's Cooperative	57,480	9,933	17.17	96	53.75	55.98	152,437
National Fishermen Producers Cooperative	56,600	13,582	23.99	125	21.75	38.00	141,274
Placencia Producers Cooperative	20,520	9,591	46.74	34	8.25	24.00	16,352
Toledo Producers Cooperative	3,020	3,927	130.03	15	8.50	56.66	5,114
TOTAL	211,320	53,728	25.4	403	108.5	119.64	453,248

APPENDIX Nº VII

CATCH STATISTICS DATA PROVIDED BY LOBSTER FISHERMEN

NUMBER OF FISHERMEN GIVING RETURNS PER MONTH

15th July - 15th December, 1967

Name of Cooperative	No. of lobster fishermen	15/7-15/8	16/8-15/9	16/9-15/10	16/10-15/11	16/11-15/12	Quota Received	Lbs. of Tails Exported up to 15th Dec.
Caribeña Producers Cooperative	133	24	34	46	29	9	140,000	73,700
Northern Fishermen's Cooperative	96	63	35	72	45	2	140,000	57,480
National Fishermen Producers Cooperative	125	7	2	3	7	13	120,000	56,600
Placencia Producers Cooperative	34	17	3	11	2	9	45,000	20,520
Toledo Fishermen's Cooperative	15	11	8	6	9	11	6,000	3,020
TOTAL	403	122	82	138	92	44	451,000	211,320

APPENDIX VIII

RICE PRODUCTION

Year	Paddy Purchases by Marketing Board	60% Equivalent Clean Rice	Est. Total Production Clean Rice	Five Year Moving Average	Marketing Board Importations	Est. Consumption on Five Year Moving Average
1954/55	499,407	299,644	370,980	-	3,689,922	-
1955/56	718,692	431,215	533,890	-	3,887,655	-
1956/57	1,301,610	780,966	992,620	-	2,000,000	-
1957/58	1,724,709	1,034,825	1,281,060	-	3,500,000	-
1958/59	1,850,188	1,110,113	1,374,430	910,596	1,800,000	3,866,112
1959/60	1,090,619	654,371	810,160	998,432	5,800,000	4,395,963
1960/61	1,561,534	936,920	1,159,970	1,123,648	1,000,000	3,943,648
1961/62	1,967,423	1,180,454	1,461,490	1,217,422	2,500,000	3,937,422
1962/63	1,625,384	975,230	1,207,440	1,202,698	4,000,000	4,022,698
1963/64	2,718,006	1,630,804	2,019,080	1,331,628	3,500,000	4,491,628
1964/65	4,557,887	2,734,732	3,385,870	1,846,770	2,250,000	4,298,770
1965/66	5,229,831	3,137,899	3,751,024	2,364,981	2,250,000	5,057,636
1966/67	2,648,232	1,588,939	1,878,196	2,448,325	3,000,000	5,448,322
1967/68	2,672,435	1,603,461	1,76?,807	2,559,595	2,500,000	5,259,594

Offshore Growers have again made a go at cucumber production specifically for the U.S.A. market. With the erection of their warehouse and docking facilities adjacent to the Western Highway, less spoilage and more efficient handling should result.

Plantains

The long dry season reduced production and for much of the year demand exceeded supply.

Other Food Crops

Exports of fresh fruits to Quintana Roo Mexico via Santa Elana and Consejo during the year was at a steady rate. Cassava, sweet potatoes, and other ground provisions were generally adequate. The mango crop was a little better than 1966. There was a bumper avacado crop and fruits could be gotten for as low as 2 for 5¢.

V EXPORT CROPS

a) Sugar Cane

The 1967 grinding season began on the 7th January at Libertad - Corozal and on the 13th February at Tower Hill - Orange Walk, but seasons ended on the 7th July. During 1967, approximately 28,000 acres of sugar cane was harvested. Production from the Libertad and Tower Hill Factories were 37,744 and 20,576 tons respectively. A survey carried out during 1967 placed the acreage sugar cane at approximately 42,780 acres, details of this survey can be seen in Table I and I(a)

Figures for the 1967 crop were as follows:-

Total production	58,320 tons
Tons per acre	20
T.C.T.S. Orange Walk	10.0
Libertad	8.99

Total value - Value shipped to 2nd July

36,977 tons valued at $4,276.309.

Sugarcane delivered	- 560,954 tons
Molasses produced	3,200,000 gals.
Price paid per ton	- 9.48 or ($5.72 U.S.)

Preferential quota price $184.00 per ton

U.S.A.	- 192.00 per ton
Canada	76.00 per ton
World Market	48.00 - 64.00

TABLE I

1967 SUGAR CANE SURVEY: ORANGE WALK DISTRICT

Branch	No. of Planters	Mec. left over cane	Est. Tonnage	Mec. Ratoon cane	Est. Tonnage	Mec. Plant cane	Est. Tonnage	Total Mec. cane	Total Tonnage	Total deliveries 1967
1. Orange Walk	148	3,738	9,676	9,171	18,958	1,205	2,829	14,114	31,463	22,703
2. Douglas	128	2,764	9,971	4,381	13,201	1,742	5,713	8,887	28,885	12,403
3. San Lazaro	94	2,441	9,012	2,826	7,152	1,296	3,804	6,563	19,968	9,082
4. San Roman	72	1,456	5,463	2,683	8,198	873	2,561	5,012	16,222	7,627
5. San Estevan	150	1,753	5,843	1,274	3,689	2,543	6,284	5,570	15,816	9,061
6. San Jose	95	1,122	4,281	2,453	6,731	1,229	4,271	4,804	15,283	7,041
7. Yo Creek	83	1,987	6,540	2,954	6,764	500	1,521	5,441	14,825	8,540
8. Guinea Grass	59	550	1,973	1,255	3,002	728	2,107	2,533	7,082	3,20
TOTAL	828	15,811	52,759	26,997	67,705	10,116	29,090	59,924	149,554	

Acres 7,490

The total tonnage does not take into account Froghoppers losses, stale burnt cane etc. Actual harvest is put at 70,000 tons

1966 672 5,236 acres

Average acres per farmer 1966 7.8 acres
Average acres per farmer 1967 9.0 acres

Tab. I (c)

1967 SUGARCANE SURVEY - COROZAL DISTRICT

Branch	No. of Planters	Left over and ratoon cane Mecates	Est. Tonnage	New Plant cane Mecates	New Plant cane Tons	Total cane for 1968 Mecates	Total cane for 1968 Tons	Actual deliveries 1967
Corozal	296	40,625	136,881	2,134	9,270	42,759	146,151	60,831
Xaibe	203	12,669	39,433	1,124	3,331	13,793	42,764	18,008
Patchakan	150	22,542	48,818	1,457	3,597	23,999	52,415	26,209
San Narciso	123	22,708	76,015	1,042	4,615	23,750	80,630	36,685
San Victor	68	5,320	15,755	914	3,116	6,234	18,871	8,035
San Fransisco	157	15,554	37,086	892	3,344	16,446	40,430	19,629
Louisville	177	15,170	49,679	2,320	8,279	17,490	57,958	20,719
San Joaquin	126	15,632	49,521	2,152	8,078	17,784	57,599	29,937
	1,300	150,220	453,188	12,305	43,630	162,225	496,728	215,513

Total Acres 37,545

1968 1,178

Average acres per farmer 1966 14.2

Average acres per farmer 1967 15.5

Sugarcane Crop Statistics 1957/67

	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Acres cane harvested	6,500	6,179	7,666	10,058	11,000	11,000	13,000	14,000	15,000	18,200	28,048
Tons cane reaped	77,049	89,635	159,017	123,752	243,460	213,490	210,362	272,319	325,786	411,353	560,954
Tons sugar produced	7,811	11,067	16,712	13,641	27,577	25,817	27,840	33,591	35,288	43,453	58,320
Tons cane/acre	11.85	14.51	20.74	12.34	22.15	19.41	16.81	19.45	21.05	22.6	20
Tons sugar/acre	1.20	1.79	2.15	1.36	2.12	2.35	2.41	2.40	2.40	2.38	2.11
Tons cane/tons sugar	9.38	8.10	9.40	9.10	8.83	8.16	7.56	8.11	9.23	9.47	9.49
Annual rainfall	38.24	60.19	36.26	62.09	48.54	47.58	34.57	67.68	57.22	71.73	46.86

roghopper attack on cane fields from August to the end of October caused an estimated 10% damage to cane fields, coupled with this were the regular fires which caused a set back in the industry. The 1968 grinding season began on November 28th, 1967 at Libertad Factory and December 12th, 1967 at the Tower Hill Factory. Sugar produced for domestic consumption in 1967 totalled 3,005 tons.

(b) Citrus

Crop Statistics 1964/67

Year	Oranges	Grapefruit
	90 lb. boxes	80 lb. boxes
1964/65	856,264	243,015
1965/66	952,064	247,067
1966/67	698,545	235,904
1967/68	730,736	233,433

The Citrus (Processing and Production) Ordinance 1966 came into force early in the year. With it a new citrus growers association was formed and a Board of Directors elected in April. Citrus prices continue to be low with resulting neglect to clearing, fertilizer, and general maintenance of groves. At the close of the year 1966/67, B.H. Fruit Co. ran under capacity to such an extent that the company showed a loss; there was market for up to one million boxes of grapefruit in the U.K. but only 600,000 boxes could be supplied. Farmers continue to sell the greater part of their orange crop to the Citrus Company of B.H., on a contract exists with this company.

The United Kingdom remains the chief export market for B.H.Citrus products, other countries to which citrus products are exported are Canada, New York, Fiji, France and the West Indies. A small export market exists with Mexico, the bulk of this being oranges with smaller quantities of grapefruit and tangerines. A small expansion of approximately 250 acres of oranges took place during 1967. Value of citrus exports for 1967 was $3,323,252 B.H. dollars.

(c) Bananas

1967 saw great strides in the banana industry, in South Stann Creek rapid expansion has taken place and the production has increased considerably. Total acreage in the south under bananas at the end of the 1967 was 2,250 acres an increase of 320 acres over 1966. The principal growers in the area are Messrs Green & Atkins, Caribbean Empire Co., Morey and Zabaneh. Leaf spot disease (Sigatoka) is still of serious concern to some plantations, even though measures were taken to eradicate all unsprayed bananas in the Georgetown and Silk Grass areas.

Banana Export Data:-

Boxes of 40 lbs net. ea.

1963	46,533 boxes
1964	11,337 boxes
1965	20,530 boxes
1966	169,249 boxes
1967	152,231 boxes

(d) Cucumbers

The Belize Offshore Growers Ltd. continued to plant cucumbers for the U.S. Market. Their estimated production for 1967 was 10 million lbs of this approximately 6.3 million lbs. was shipped. The new warehouse facilities at mile 5 on the Western Highway should improve services considerably.

(e) Honey and Beekeeping

Honey Production in 1967 increased by some 27%, while hives decreased 10.3%. Honey exported to U.K. totalled 154 long tons of processed honey (348,597 lbs. or 528 drums) a total of 76, 409 lbs of honey was consumed locally at a price of $100.00 B.H. per drum, this is a 10% decrease on local consumption. Honey is sold locally at 60¢ per bottle. Price paid by Kimpton Brothers was £81 sterling c.i.f. France and England. Prices in 1968 are expected to be higher.

There was an average production of approximately 85 lbs of honey per hive in the Districts, and the amount of full colonies which all the districts worked during the honey flow were 4,922 hives. For the year, approximately 9,416 lbs of wax was produced, the greater portion of this was made into wax foundations and sold at 16-20¢ per sheet; 6,000 sheets were produced during the year.

The net value of Honey exported to the U.K. amounted to $54,016.00 B.H. dollars.

The position at the end of 1967 was as follows:-

District	Apiaries	Hives	Beekeepers	1967 Production	1966 Production
Corozal	91	2,695	41	270,600	215,333
Orange Walk	72	2,216	22	148,950	113,520
Cayo	5	51	4	1,370	3,300
Stann Creek	4	23	4	330	168
Punta Gorda	5	50	5	720	888
Caye Caulker	1	2	1	72	50
Belize	6	105	6	3,036	1,238
	184	5,147	83	425,078	334,497

(f) Tobacco

The Honduras Tobacco Company planted some 40 acres to filler and wrapper leaf tobacco in comparison to 250 acres in 1966. Some 18,530 lbs. cigarette tobacco was sold to Maestres Industries in Belize for manufacturing. Exports to the United States amounted to 26,142 lbs. tobacco with a total value of $23,772.00.

(g) Cacao

Exportation to the United States of America of raw cacao beans amounted to 16,200 lbs valued at $9,000.00.

VI. AGRICULTURAL DEVELOPMENT AND EXTENSION WORK

(a) General

The staffing position during 1967 improved slightly over 1966, but the District Stations remained mostly under the control of Asst. Agricultural Officers. In January 1967, the Agronomist M.W.Silvey after completing his tour of duty left the country. In February Mr. R.A. Bowman was appointed an Agricultural Officer after gaining his B.Sc. in the U.S.A., he subsequently retired on the 10th November, 1967. Filling the position of Principal Agricultural Officer i/c Central Farm was Mr. H.D. Matheson who came to the country on the 3rd April, 1967.

For the first time a local Plant Pathologist has been appointed, Mr. J.E. Link assumed the duties of Plant Pathologist with the Department on the 12th June. The Veterinary Officer, C.W.B.Hatherill having been in the country since March, 1965, left for England in June 1967. It was not until late in the year that another Veterinary Officer joined the Department with Mr. P.T.H Hall assuming duties on the 24th December. Due to shortage in senior staff, it was necessary for the Farm Planning Officer to take over the Toledo District in November 1967.

(b) Agricultural Education and Training

In early 1967 Agricultural Officer Ellis formerly posted in Corozal District took over the duties of Agric. Education Officer. During the year, a total of eleven courses were held and 104 students received training. A summary of the courses held can be seen in Table III. Two conferences were held by the Department at the school during the year. The annual Staff Conference in January, and the other was a Policy Conference in October chaired by the Minister of Natural Resources.

In June three officers from the Department went on study tours in the U.S.A. Mr. O.O. Orio, Livestock Officer, Mr. P. Lizarraga, Farm Planning Officer, and Mr. H.A. Reyes, Sr. Farm Demonstrator.

In September Mr. L. Gonzalez left for Canada to pursue a University degree course leading to a B.Sc. in Animal Husbandry.

(c) Vegetable Trials

Investigations continued on vegetable varieties as regard their adaptability to different planting dates in different parts of the country. Based on the 1967 results obtained in the Horticultural Section an interim planting guide was prepared, Table IV. All Districts took part in these trials.

Horticulture

The propagation of ornamentals for sale continued during the year, and plants were sent regularly for sale in Belize District. Planting material added to the collection, during the year were Sesbenia agat, Queen of Flowers, Grangipani(white) seven varieties of Bouganvillea, Philodenron and four varieties of Roses. The Section also supplied 700 plants towards "Operation Petunia" held in Belize City.

(d) Agricultural Shows

Two major agricultural shows were held in the year. A successful Farmers Day was held at Stann Creek on the 29th and 30th April. The regular Chan Pine Ridge Show was held on the 9th March in the Orange Walk District. Both shows were well attended by farmers and members of the public.

VII. FISHERIES

General

The Fishing Industry exploits resources of reef dwelling inshore and estuarine fishes(generally referred to as scale-fish) as well as shell fish in the form of spiny lobster, conch and shrimp. Whereas before 1945 the industry largely concentrated on the production of scale-fish in salted and dried form for export to the neighbouring republics; since that time there has developed an extensive export market to the U.S.A. of spiny lobster.

Exports

Total exports of fisheries products have risen from 670,686 pounds in 1963 to 1,235,276 pounds in 1967. The exports of fish and conch have doubled since 1966, and in 1967 the newly established shrimp fishery exported 228,000 pounds of shrimp. It is estimated that total exports for 1968 will reach up to one and a half million pounds. Most of the increase will come from the exports of fish and conch.

The export of lobster tails in 1963 amounted to 345,361 pounds and rose to 431,500 in 1965 but fell to 316,970 pounds in 1967. Five fishing cooperatives operated throughout the year, with a total membership of 403 fulltime fishermen.

TABLE III

Summary of Courses

Course	Duration (days)	Participants	Number attended
Vegetable Gardening	12	Crooked Tree Village	8
General Agriculture (Course A)	20	Farm Demonstrators	8
Extension	5	Senior Field Staff Agriculture and Social Development	16
General Agriculture Course A(2)	46	Farm Demonstrators	12
General Agriculture	12	Rural Leaders (Cayo)	12
General Agriculture	6	Rural Leaders($/Creek)	9
General Agriculture	6	Rural Leaders(Belize)	6
General Agriculture	6	Rural Leaders(O/Walk)	11
General Agriculture	6	Rural Leaders (Corozal)	16
Extension	3	Senior Field Staff Agriculture Department	6
	92		104

TABLE IV

VEGETABLE VARIETAL PLOT 1967

CENTRAL FARM

Planting Period Results

Vegetable	January - April	May - August	September - December
Tomato			
Marglobe	Not later than January	Poor- bacterial disease	Very good
Bonny Best	Not later than January	Poor - bacterial disease	Very good
Homestead	Not later than January	Poor - bacterial disease	Not before October
Manlucie	Not later than January	Poor -bacterial disease	Very good
Cabbage			
Copenhagen Market	March-April insects severaly damaged	June-July bacterial rot	Good, av. 1½ lbl.
Early Jersey	March-April insects severely damaged	June-July bacterial rot	Very good, av. 1¼ lbs.
Flat Dutch	March-April insects severely damaged	June-July bacterial rot	Fair av. 1¾ lb. (insect attack)
Marliana	March-April insects severely damaged	June-July bacterial rot	Fair av. 1 lb.
Cauliflower			
Dutton's Tropical	Destroyed -chemical damage	No trial	Good; av. 12 o
Early Patna	Destroyed - chemcial damage	No trial	Good; av. 12 oz.
Early Snowball	No trial	June-July bacterial rot.	Poor, heading 25%; av. 10 oz.
Lettuce			
Imperial Head 847	Very good, av. 1 lb.	60% formed heads-bitter	No trials
Iceberg Lakes	Very good, av. 12 oz.	Poor - no head formed	No trials
Bibb (Loose leaf)	Good av. 5 oz.	Poor - no head formed	No trials
Limpco Greenheart	Good	Dried from changing off	No trials

The following table shows the exports of lobster tails for 1967 compared to 1966.

Exports of Lobster Tails

Exporter	lbs. Exported	No. of lobsters Exported	Av. weight in ounces	Lbs. Exported	No. Lobsters Exported	Av. wt. in ounce
Caribeña Producers Cooperative	120,530	253,240	7.6	115,880	228,680	8.1
Northern Fishermen	127,272	350,153	5.8	83,360	223,229	6.9
National Fishermen	111,720	167,843	10.6	86.520	224,476	6.2
Placencia Producers	29,880	50,870	9.4	27,680	42,458	10.4
Toledo Fishermen	2,700	4,154	10.4	3,530	5,744	9.8
Total	392,102	826,280	7.6	316,970	724,587	6.9

Prices for lobster tails ere relatively low throughout the year, started to increase during the latter part and were up to average of $2.00 U.S. by the en of the year.

The Lobster Statistical Programme continued throughout the year. There wa still a marked reluctance on the part of fishermen to provide the required data. Regulations were recommended by the Fisheries Officer to make the submission of returns compulsory. It is hoped that these regulations will come into effect in 1968.

A revised lobster statistical form was drawn up which made it easier for the fishermen to fill. Another form has been drawn up for the collection of data on other types of fish with the exception of shrimp. For this a special form was drawn up and the skippers of trawlers, provided the returns for each trip. Sampling of the catch was also done at the packing plant, and also on boar the trawlers to determine the composition of catch.

Sampling of lobster was also done to determine the relationship of carapac length of tail weight.

Technical Assistance

A replacement for the FAO Marine Biologist who left the country in Septemb 1966, was assigned and arrived in the country in March. His terms of reference were continuation and expansion of the programme started in 1965. His assignment was for one year with a possibility of an extension.

The FAO Fish Processing Technologist left the country in September after stay of fourteen months. During the year FAO Fellowships were provided for the Fisheries Officer and Fish and Food Processing Inspector. The former was for six months' duration in Fisheries Management and Techniques. The latter was fo three months training in inspection of fisheries products for quality standards, and processing plant inspection for proper hygiene and sanitation.

Research

Construction of a fisheries research vessel and a laboratory started early in the year. At the end of the year the laboratory was nearly completed and the equipment had already been ordered. The laboratory would be

equipped for biological research as well as facilities for testing quality standards of all fisheries products. It is also planned for experiments for development of new products, such as canning of fish and lobster meat.

The launch is intended for biological surveys as well as exploratory fishing for all types of fish with different types of gear, in fished and unfished areas.

Lobster Tagging

This programme was in planning for quite some time and finally started in October, and by December 2,079 lobsters of different sizes had already been tagged. The aims and objects of the programme are to determine the growth and movements of the lobsters where tagging is carried out. Population numbers can be estimated by tagging, but these can only be effective if accurate figures of catch are available from each area under consideration.

Rewards have been offered for the return of tag recoveries, and by December 31st one hundred and eight recoveries had been returned. It is too early to make predictions, but the programme has had a good start, and the fishermen are cooperating and the Department is sure that this programme will be a sucess.

Future Plans

The collection of statistical data for lobster will continue, and the programme will be extended to cover all types of fish. Tagging will continue and other areas will be covered. Funds for employment of a Fisheries Biologist have been made available, and recruitment to the post will be made sometime in 1968.

Recommendations on new legislation are being drawn up. These include registration of vessels and licensing of fishermen, as well as the requirement to submit catch returns of all fishing operations. Also included are recommendations for amendment of the Fisheries Ordinance and present Regulations with the object of giving better control and management of this industry which contributes substantially to the economy of the country.

VIII. SPECIAL PROJECTS

Rice Production Scheme

a) Toledo District

With the need to involve nationals more directly in modern production methods and to progress from the shifting cultivation of hill and dry land rice, and furthermore to make the country more self-sufficient in Rice, Government has launched an extensive Co-operative basis rice production scheme in the Mafredi - Columbia areas in the Toledo District. Although actual planting of the crop is scheduled for 1968, all plans and approval for the Scheme have been concluded and construction of access roads were carried out during the year.

b) Belize District

Tentative plans are also in hand for the Rancho Dolores Rice Scheme in the Belize District. This is a Co-operative venture, and will be put into effect during 1968.

IX RESEARCH

During 1967 work continued along the following lines:-

1) To conduct research primarily into major food crops(corn, sorghum, rice,beans, forage crops etc.) with the aim of increasing the yield and quality of these crops economically, efficiently and in accordance with good crop husbandry and management.

2) To devise and establish suitable crop rotation system in order to encourage a more sedentary agriculture which will benefit the farmers of the country through better land management and utilization.

3) To establish a close liaison with the extension staff so that relevant results of trials will be put into practical use more quickly and the immediate problems of the farmers will be similarly recognised.

4) To work with private industry whenever possible to further the above objectives.

5) Trials as far as possible are conducted in two phases, preliminary and intensive on agricultural stations and for specific environmental zones by the Research Division, and (b) extensive simple demonstration trials on farmers land by the individual farmers or groups of farmers under the Supervision of the Extension Officer.

6) To give technical advice, lectures and radio broadcast on reaearch programmes and results.

Pasture Introduction Crops

Grasses

The grasses from the Introduction Block have been divided into four groups according to their growth rate and production. Only two of the local, commonly known grasses of this country were classified in group I viz. Jaragua and Guinea grass.

All grasses were cut at a height of 4-6" above ground. The plots were fertilized once with the equivalent of 100 lbs - 12:24:12 fertilizer per acre. The results in group I show that Merker (Pennisetum purpureum) outyielded all varieties.

In group II there is only one locally known grass namely, sweet grass. Group III grasses are third in importance in B.H. In this group Lazaingulu setaria seems to be of good potential. Group IV grasses will be tested for another year, if no marked differences are obtained, they will be discarded as unsuitable and uneconomical for pasture condition in B.H.

It may be pointed out at this time that one of the most popular grasses in B.H. pangola - Digitaria decumbens is in Group IV.

It has been found in other experiments that Pangola will yield considerable bulk, with high fertilization, but the cost of fertilizer in B.H. presently makes this practice uneconomical.

All grasses in groups I and II will be used in 1968 pasture experiments. This will be the third phase of the Agriculture Department's pasture programme. After these experiments, selections will be made based on relative yield, protein and rate of growth.

Group I

Yield of Grasses in Cwt/Acre

Five Cuttings per Annum

Samples	1st Cwt/Ac.	2nd Cwt./Ac.	3rd Cwt./Ac.	4th Cwt./Ac	5th Cwt./Ac	Total	Average
Molopo Buffel	34.8	109.1	99	66	109.1	418.0	83.6
Buffel	74.0	230.3	168	141	103.0	716.3	143.3
Jaragua	27.6	84.8	168	60	78.8	419.2	83.8
Elephant	43.7	218.2	180	129	129.4	700.3	140.1
Guinea	28.8	103.0	135	96	93.9	456.7	91.3
Hamil	65	181.8	204	117	187.9	755.7	151.1
Columbus	32.3	109.1	132	30	54.5	357.9	71.6
Merker	160.6	630.2	327	303	430.3	1851.1	370.2

Group II

Protein Content of Grasses

Samples	1st Protein	2nd Protein	3rd Protein	4th Protein	5th Protein	Total	Averag
Molopo Buffel	8.41	8.33	8.13	7.50	7.44	32.36	6.47
Buffel	7.66	7.63	6.44	6.68	8.07	36.48	7.30
Jaragua	4.45	10.19	8.13	8.00	9.50	40.27	8.05
Elephant	9.89	7.44	8.38	8.88	10.75	45.34	9.07
Guinea	6.92	8.38	5.25	6.75	10.50	37.80	7.56
Hamil	9.64	8.88	7.88	7.81	7.45	41.16	8.23
Columbus	4.94	7.44	9.56	8.00	11.00	40.94	8.19
Merker	11.39	12.67	11.69	9.31	12.92	57.98	11.60

Group II

Fields of Grasses in Cwt/Acre

Four Cuttings per Annum

Samples	1st Cwt/Acre	2nd Cwt./Ac.	3rd Cwt/Ac	4th Cwt/Ac,	Total	Average
Coastal Bermuda	175.7	96	54	66.7	392.4	98.1
Japanese	180.0	181.8	42	60	301.8	75.6
Gayndah Buffel	109.1	84	54	60.6	307.7	76.9
Buffel Bilada	53.0	156	102	84.4	395.8	99.0
Sweet Grass	72.7	102	66	48.5	289.2	72.3
Bambatsii	18	54.5	24	30.3	126.8	31.7
African Guinea	27.2	109.1	63	127.3	326.6	81.7
Rhodes Bay	48.5	54	30	54.5	187.0	46.8
Caril	339.4	219	129	248.5	935.9	234.0
Star	109.1	66	39	63.6	277.7	69.4
Buffel	121.2	144	78	63.6	376.8	94.2

Group II

Protein Content of Grass

Four Cuttings per Annum

Samples	1st Cwt/Ac.	2nd Cwt/Ac.	3rd Cwt/Ac.	4th Cwt/Ac.	Total	Average
Coastal Bermuda	5.75	7.38	7.31	9.26	29.70	7.43
Japanese	7.91	5.00	8.63	3.19	29.73	7.43
Gayndah Buffel	6.94	10.50	8.63	13.37	39.44	9.86
Buffel Bilada	7.42	8.88	7.75	10.12	34.17	8.54
Sweet Grass	7.88	10.50	11.06	14.00	43.44	10.86
Bambatsii	9.89	8.38	8.63	13.42	40.32	11.08
African Guinea	10.38	6.75	10.19	10.75	38.07	9.52
Rhodes Bay	8.94	8.63	8.44	9.80	35.81	8.95
Caril	6.69	9.81	6.75	11.31	44.20	11.05
Star	6.00	10.06	6.63	8.88	31.57	7.89
Buffel	5.75	6.69	6.44	8.07	26.95	6.74

GROUP III

Yields of Grasses in Cwt/Ac.

Three Cuttings Per Annum

Samples	1st Cwt/Ac.	2nd Cwt./Ac.	3rd Cwt/Ac,	Total	Average
Alemana	120	69	30.3	219.3	73.1
Bluestem	48.5	249	275.7	573.2	191.1
Kazungulu	72	24	60.6	156.6	52.2
Scorbic	36.4	36	18	90.4	30.1
Rhodes Grass	27	18	18.2	63.2	21.1

GROUP III

Protein Content of Grass

Three Cuttings per Annum

Samples	1st Protein	2nd Protein	3rd Protein	Total	Average
Alemana	10.50	7.31	9.80	27.61	9.20
Bluestem	4.94	6.69	4.50	16.13	5.38
Kazungulu	3.38	9.75	11.62	24.75	8.25
Scorbic	8.63	7.88	7.50	24.01	8.00
Rhodes Grass	11.19	9.75	11.92	33.58	11.19

GROUP IV

Yields of Grasses in Cwt/Ac.

Two Cuttings per Annum

Samples	1st Cwt/Ac.	2nd Cwt/Ac.	Total	Average
Japanese Lawn	315	133.3	448.3	224.2
Nandi	60	66.7	126.7	63.4
Penjala	192	96	288.0	144.0
Pensacala	42	60	102.0	51.0

GROUP IV

Protein Content of Grasses

Two Cuttings Per Annum

Samples	1st Protein	2nd Protein	Total	Average
Japanese Lawn	6.44	10.42	16.86	8.43
Nandi	6.00	5.69	11.69	5.85
Pangala	8.13	6.76	14.88	7.44
Pensacala	9.31	6.44	15.75	7,88

Grass and Legume Mixture

Legume it is hoped, will play a major role in pasture improvements in British Honduras, since the cost of fertilizer inhibits to a great extent the amount or types that can be applied to a pasture. Legumes have the ability to produce nitrogen through a symbiotic relationship with bacteria in the soil. In most cases more nitrogen is produced than is required by the legumes, this is released in the soil and can be used by a companion crop. For this reason a grass and legume trial was conducted at Central Farm. The object of this trial was to find cut what grass or grasses can grow well in conjunction with Tropical Kudzu(Pueraria phasco lides) and the effect this legume will have on the field and protein content of the grasses. The ten grasses chosen for this trial were:-

Guatemala - Trisicum laxum
Jaragua - Hyparrhenia rufa
Elephant - Pennisetum purpurcum
Guinea - Panicum Maximum
Star - Cynodon plectostachyum
Pangola - Digitaria decumbens
Bermuda - Cynodon dactylon
Para - Panicum muticum
Buffel - Cenchrus ciliaris
Columbus - Sorghum almum

A basic dressing of 12:24:12 was applied to each plot at the equivalent of 100 lbs per acre.

Results

After one year, the grasses were grouped into two categories according to yield and rate of growth. Elephant and Guatemalan seem to be the most promising in this experiment. The yield and protein content of both grasses were the best of the ten.

Pangola although it's yield was below average did demonstrate that in association with a legume it can provide much more feed for livestock. The increase shown above the plot of pure pangola was 7,900 lbs of green feed per acre per year.

The grass and legume mixture in most cases, seems to be more beneficial than grass alone, this trial will be continued for at least one more year, so that more precise statments can be made.

Group I

Yield of Grasses and Legume Mixture in Cwt/Ac.

Names	March	April	June	July	August	October	Total	Averag
Elephant and Kudzu	270	55.1	79	189	139	-	732.1	146.4
Elephant	248	48.0	78	181	134	-	689.0	137.8
Guatemala and Kudzu	211	24.6	24	82	112	132	585.6	97.6
Guatemala	233	24.9	34	76	90	105	562.9	93.8
Jaragua and Kudzu	105	42.8	32	114	131	88	512.8	85.5
Jaragua	90	34.1	28	86	93	70	401.1	66.9
Columbus and Kudzu	78	27.6	46	101	123	42	417.6	69.6
Columbus	80	28.5	40	102	107	38	395.5	65.9
Guinea and Kudzu	110	18.1	24	99	75	-	326.1	65.2
Guinea	133	20.1	38	134	81	-	406.1	81.2
Total	1,158	323.8	532	1,164	1,085	475	4,628.8	
Average	115.8	32.4	53.2	116.4	108.5	79.2		

GROUP II

Yields of Grasses and Legume Mixtures in Cwt/Ac.

Names	March	June	July	August	Total	Averagé
Pangola and Kudzu	126	-	130	68	324	108.0
Pangola and Para	86	-	96	63	245	81.7
Kudzu	93	57	108	108	367	91.8
Para	104	78	120	81	383	96.8
Buffel and Kudzu	75	34	87	91	287	71.8
Buffel	76	66	102	69	313	78.3
Star and Kudzu	73	46	63	62	244	61.0
Star	77	48	52	76	253	63.3
Bermuda and Kudzu	61	-	100	43	204	68.0
Bermuda	18	-	70	41	129	43.0
Total	789	359	929	702	2,779.0	
Average	115.8	60.0	92.9	70.2		

GROUP I

Percent Crude Protein of Grasses and Legume Mixture

Names	March	April	June	July	August	October	Total	Average
Elephant and Kudzu	5.32	6.47	8.63	7.63	7.31	-	35.36	7.07
Elephant	3.88	4.91	7.01	7.38	6.56	-	29.74	5.95
Guatemala and Kudzu	6.95	9.64	9.06	6.69	6.19	9.26	47.79	7.96
Guatemala	7.82	9.81	11.69	7.63	13.06	7.45	57.46	9.58
Jaragua and Kudzu	4.69	5.93	5.75	5.31	8.94	36.37	36.37	6.06
Jaragua	3.28	5.30	4.90	5.25	5.31	8.07	32.11	5.38
Columbus and Kudzu	8.54	6.43	7.63	8.63	8.00	11.62	50.85	8.47
Columbus	8.01	6.01	7.19	7.63	6.19	14.00	49.03	8.17
Guinea and Kudzu	5.13	6.92	10.06	5.75	5.13	-	33.17	6.63
Guinea	3.88	6.11	8.63	7.38	5.06	-	31.06	6.21
Total	57.50	67.53	80.55	69.72	68.30	59.34		
Average	5.75	6.75	8.06	6.97	6.83	9.89		

GROUP II

Percent Crude Protein of Grasses and Legume Mixture

Name	March	June	July	August	Total	Average
Pangola and Kudzu	5.70	-	7.63	4.00	17.39	5.79
Pangola	4.94	-	5.50	3.56	14.00	4.66
Para and Kudzu	6.13	5.25	6.19	7.06	24.63	6.16
Para	5.51	3.38	4.56	5.75	19.20	4.80
Buffel and Kudzu	6.13	6.75	9.56	7.75	30.19	7.55
Buffel	5.16	4.81	6.44	5.06	21.47	5.37
Star and Kudzu	4.51	4.00	6.69	5.56	20.76	5.19
Bermuda and Kudzu	7.81	-	10.25	6.19	24.25	8.08
Bermuda	5.13	-	6.44	4.88	16.45	5.48
Total	54.36	29.44	69.26	54.87		
Average	5.44	4.91	6.93	5.43		

Legumes

Eight legumes were introduced in Central Farm, Tropical Kudzu (Pueraria phaseoloides) is the highest yielding legume sofar. It is also to a limited extent free from disease and insect problems. This legume is quite harsh, and it is doubtful whether it will be eaten readily by livestock.

The Glycines proved to be highly susceptible to disease in high humidity condition and to insect damage. Whenever closely entangled, their leaves become infected with a fungus (cercospora spp.) which causes a chlorotic condition and eventually they die.

Stylosenthes

Annual Stylo (Stylosenthes humilis) during the dry weather, becomes severely infected by spider mites and aphids which result in variegated yellow leaves. This plant also seems to go dormant during the dry weather. Perennial Stylo (Stylosenthes gracilis) however seems to strive best, during the dry months. It is also very resistant to mites and aphids attack, and is more capable of competing with grasses and weeds.

Phasemy bean

Phasemy bean (Phaseolus lathyraides) although not very bulky is quite high in crude protein, this legume is also very resistant to insects and pests. Its vigorous growth and adaptability lends itself quite readily to pasture. Since it is palatable it will be eaten by livestock together with grasses, and because it seeds quite freely will not be easily destroyed. Presently this legume seems most promising.

Centrosema

Centrosema (Centrosema pubescens) is another of the promising legumes, it has shown great resistance to disease and insects. It has also been quite competitive with weeds. A trial is being conducted this year using this legume as the companion crop with improved varieties of grasses.

Hairy indigo

Hairy indigo (Indigofera hirusta) a very shrubby type legume is the lowest in crude protein. It is doubtful whether it will be palatable for livestock due to its pubescent characteristic and stalky appearance.

TABLE V

Yields of Legume in Cwt/Ac.

Names	1st	2nd	Total	Average
Perennial Stylo	195	84	279	139.5
Phasemy Bean	84	66	150	75.0
Hairy indigo	156	166	317	158.5
Annual Stylo	127	118	245	122.5
Centrosema	144	154	298	149.0
Glycine Cooper	60	59	119	59.5
Glycine Clorence	57	58	115	57.5
Glycine tinoroo	57	59	116	58.0
Tropical Kudzu	162	170	332	166.0
Total	1,042	934	1,976	
Average	116	104		

TABLE VI

Percent Crude Protein of Legume

Name	1st	2nd	Total	Average
Kudzu	25.00	24.81	49.81	24.90
Phasemy bean	28.60	22.91	51.51	25.75
Centrosema	20.31	21.30	41.61	20.80
Perennial Stylo	19.69	21.79	41.8	20.74
Annual Stylo	17.94	18.01	35.95	17.97
Tinaroo glycine	19.31	19.41	38.72	19.36
Clorence glycine	15.31	14.91	30.22	15.11
Cooper glycine	14.81	15.10	29.91	14.95
Hairy Indigo	10.37	11.38	21.75	10.87
Total	171.34	169.68	340.96	
Average	19.04	18.85		

Arable Ley Rotation Trial

Summary

A plot of land at Central Farm was selected to simulate a small farmers holding in this country. Trials are and will be conducted each year for seven years, to determine the type of agricultural practices required and the amount of land needed to ensure an adequate standard of living for farmers of the country.

This year six acres of land were in pasture grass, four acres of Pangola(Digitaria decumbens) and two acres of Jaragua(Hyparrenhia rufa). Steers averaging 800 lbs were fed up to an average of 1,000 lbs after which they were sent to the market. A batch of six steers were fed at a time, this gives at least two lots of steers per year with an average of 1.6 lbs per day gain.

One crop of corn, rice and beans was harvested this year, with an average of 3,500; 1,200; and 2,000 lbs per acre respectively.

Procedure of Trial

A twelve acre block was divided into six sub-blocks each of approximately 2 acres. Three of these sub-blocks were used for pastures and three for agronomic crops. In the pasture blocks, the animals were rotated in order to ensure proper utilization of pasture. Whenever the animals were removed from a pasture block, it was fertilized with Urea at a rate of 50 lbs per acre. Animals were rotated monthly, thus 200 lbs of Urea per acre was used for the year.

Crops

Corn(Zea Mays)

This year four acres of POEY T66 hybrid corn was planted. The land was plowed and disc harrowed in April, prior to planting in May, the area was again harrowed to control weeds, this controlled the weeds for approximately one month at which time the corn was about two feet high. With the aid of a knapsack sprayer and shield, gramazone was applied at the rate of one quart per acre. This controlled all weeds through to the harvesting period.

A yield of 3,500 lbs per acre was obtained with the application of 100 lbs 18:46:0 fertilizer, costings on this crop showed a profit of three hundred and thirty five dollars for four acres

Red Kidney Beans (Phaseolus vulgaris)

Six acres of California Red Kidney Beans were planted this year. The area was plowed and harrowed in October. It was again harrowed in November to control established weeds. One month after planting the area was sprayed with gramozone at the rate of one quart per acre, this controlled all weeds for the remainder of the season. The yield obtained this year was about 300 lbs per acre above the average of 900 lbs. This was obtained with the application of 50 lbs Sulphate of Ammonia, 100 lbs of Triple Superphosphate and 50 lbs Murate of Potash per acre. The profit derived from this crop is $396.50.

Rice (Oryza Satina)

Two acres of rice were planted this year to determine its feasability in the Cayo District. Land cultivation was quite similar to that of corn. From the two acres planted a profit of $105.70 was realized. This is quite comparable to corn or beans except that it takes a longer period to realize similar profits.

TABLE VII

Weight of Cross Bred Brahman Steers

Brand No.	January	April	July	Gain/Day	Grains in 192 days
142	620.5	860	1,000	2.0 lbs.	379.5
143	558.5	780	922	1.9 lbs	363.5
61	747.5	980	1,132	2.0 lbs.	384.5
35	665.0	876	1,006	1.8 lbs.	341.0
145	656.0	850	970	1.9 lbs.	314.0
33	666	850	968	1.6 lbs.	302.0

TABLE VIII

Arable Ley Rotation Trial

Brand No.	Wt. on 31st July	Wt. on 31st November	Gain in 122 days	Gain/day
5/18	787	945	159	1.3 lbs.
5/67	833	1,016	183	1.5 lbs.
5/299	833	1,065	233	1.9 lbs.
5/74	745	916	177	1.4 lbs.
5/16	794	952	158	1.3 lbs.
5/43	835	1,045	210	1.8 lbs.
TOTAL	4,827	5,939	1,114	9.3 lbs.

Conclusion

From the results obtained, it is quite obvious that the three crops and livestock experimented on this year can be done on a profitable basis in the Cayo District, providing modern techniques are adhered to. A gross profit of $1,310.20 is possible per annum if proper techniques and management are practised. With pangola pastures, range cattle weighing an average of 600 - 700 lbs could be bought and fattened to 1,000 lbs for a profit.

Rice Variety Trial

Seven varieties of rice were received from the Phillipines, because of the small quantity obtained, it was necessary to bulk them before any valid experiment could be carried out. As these varieties were just being introduced in this country some observations were made in respect to growth habits, time of maturation, insects and pests infestation and yield in terms of grains.

A level site was selected at Central Farm to conduct this multiplication programme. As these varieties were selected in areas where low land rice is practised, it was decided that this be done on a small scale at Central Farm.

Because sufficient water was not available to ensure complete coverage by flooding, a sprinkler system was devised, this although not ideal did provide the water requirements. With the rains in July and October the plots were sometimes completely covered with water at 2 to 4 inches depth.

Materials and Methods

Site - Central Farm

Soil Type - dark grey clay loan

Sample plots - Because of the varying amount of rice received from the Phillipines and the primary objective of this trial, the plots were of varying sizes. B-5580, B-581-A6 and B-572-A2 varieties were planted in plots equivalent to 1/275 of an acre, whereas IR-154 and IR varieties were planted in plots equivalent to 1/240 of an acre. IR-8 and IR-6 were planted in plots of one fifth of an acre.

Results and Discussion

Tables IX and X show the performances of the varieties. It can be seen that Milfor-6, IR-5 and B581-A6 yielded the highest with the exception of the IR's variety with the highest number of tillers per stool the other two varieties tillering ability was a little above average.

Table X shows that the Milfor-6 was the tallest variety and IR-154 the shortest. B-581-A6 which is 39.2 inches in height (average) produced the largest and heaviest 'head' among the varieties studied.

There was an attack of stem boren and blight(curvularia spp. . The variety most severely attacked was IR-8 with approximately 30% of the entire panicles and grains damaged.

Fertilizer used was urea, triple superphosphate and muriate of potash. Phosphate and potash were applied as a basic dressing of 150 lbs and 100 lbs per acre equivalent respectively. Urea was applied in two applications, one hundred pounds per acre equivalent as a basic dressing along with phosphate and potash and again 50 lbs/acre equivalent about two weeks before booting.

The result obtained from all the varieties seem promising. The IR varieties seem quite adapted to mechanical harvesting, whereas the B varieties and Milfor 6 are quite tall. Also quite true of IR-8 is its resistance to bird attack. The panicles are somewhat protected by leaf blades which are upright and as a result does not provide an easy perch for birds.

TABLE IX

Performance of Phillipines Rice Grown in Central Farm

Varieties	Yields in Cwt/Ac.	Days to Flowering	Days to Harvest	Av. No. of Panicle	Av. No. of Tiller	Av. wt. of Panicles	Av. No. of Ped/Panicles	Av. No. of Grain/ Panicles	Av. No. of Panicle
IR-154	41.4	82	120	25	27	65.8	10	113	8.1
B5580	59.8	90	134	14	14	93.6	15	170	-
B581A6	72.5	90	134	15	16	107.2	14	205	-
IR-8	61.8	102	150	23	27	82.0	11	142	9.2
IR-5	69.4	102	150	28	32	94.1	12	164	8.9
Milfor-6	71.1	90	150	16	18	74.9	12	179	13.5
B572A3	65.3	86	145	18	24	66.3	13	131	9.6

TABLE X

Heights of Phillipine Rice Varieties at Time of Panicle Formations in Inches

Varieties	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Total	Average
B581A6	38.5	43.0	40.5	36.5	34.0	37.5	42.0	40.5	39.5	39.5	391.5	39.2
B572-A3	34.5	41.5	41.5	47.5	38.5	44.0	39.5	38.5	43.0	42.5	411.0	41.1
B5580	40.0	32.5	38.8	42.5	36.0	44.5	39.0	36.0	44.5	41.5	395.3	39.5
Milfor-6	44.5	53.0	52.4	56.5	59.5	56.0	49.5	56.5	57.0	62.5	547.4	54.7
IR-5	46.0	40.0	41.5	41.5	46.5	45.0	44.0	43.0	45.5	43.5	436.5	43.7
IR-8	35.5	35.5	41.5	37.0	34.0	37.0	34.0	36.5	32.0	34.0	357.5	35.8
IR-154	39.0	38.5	36.0	32.5	31.5	33.0	35.0	37.0	38.0	41.5	362.0	36.2

Corn Fertilizer Trial

Object

To study the effect of different rates of nitrogen and phosphorus fertilizers on the growth and yield of corn(Zea Mays) variety VS 550A.

Materials and Methods

Site - Block 8, Agronomy Section - Central Farm

Soil Type - Cuxu brown clay

Design of Experiment - A systematic design of 16 treatments with 4 replications.

Treatment - 0, 21, 42 and 63 lbs Nitrogen in the form of Sulphate of Ammonia

0, 46, 92 and 138 lbs P_2O_5 in the form of Triple Superphosphate.

Plot Size

All sample plots were 6 ft. x 30 ft. (equivalent to 1/242 acre) guard rows surrounded each plot.

Pre-Planting Cultivation

The experimental area was ploughed to a depth of six to eight inches and disc harrowed three times to control weeds.

Planting

Plots were dressed with an equivalent of 4 lbs 40% W.P. aldrin per acre to control soil pests. The insecticide was raked into the soil. The corn was hand planted three feet by one foot apart, and approximately one to two inches deep. Fertilizer was broadcasted by hand. There was an actual germination of 30%, and as such transplantation was carried out from the guard rows. The crop grew without interruption until tasseling, when it became infested with Armyworms. There was a partial control after the application of Dadimac at the rate of 3 Imperial pints per acre. Weeds mostly Paspalum and Eupharbia spp., they were controlled at the two to three leaf stage.

Results and Discussion

From Table XI it can be seen that the highest yield obtained only exceeded control by 640 lbs per acre, this was at the highest level of fertilization.

At 100 lbs Sulphate of Ammonia and 200 lbs Triple Superphosphate, the yield obtained was a little over 4,000 lbs per acre. The treatments with the highest number of plants with double cobs were in some cases the same treatments with the highest yield.

Conclusion

The results obtained from this trial are quite varied, and as such no specific conclusion can be made. However, there seems to be some inference that can be made in regards to an optimum fertilizer for corn growing in Cuxu soils. From the results it appears that the best treatment is 100 lbs Sulphate of Ammonia and 200 lbs Triple Superphosphate. There is also some relationship with regard to number of double cobs per plant and yield in terms of grain produced. Nitrogen fertilizer seems to stimulate double cob formation. This will be tested further in the 1968 programme.

X PEST AND DISEASE

a) Veterinary Services

No major disease outbreaks occurred during the year. The Veterinary Officer made regular visits to the Districts until June when he left the country. With help from Mr. F.F.Orio an experienced Veterinary Field Officer, Farm Demonstrators were able to maintain good standards, until the arrival of the new Veterinary Officer in December. With his arrival and the expected arrival of another Veterinary Officer,1968 should see a major step forward in the Veterinary services of the country. List of treatments carried out during the year can be seen in Appendix V.

b) Citrus Research

The U.W.I. Citrus Research Unit continued to investigate control of Mexican Fruit Fly, Stink Bug(Bush bug) and other insect pests. Recommendations for the control of pests has been passed on to the Citrus Growers Association for their members. Root stock and nutritional trials continued in growers orchards. At the 26th meeting of the Directors of the British Caribbean Citrus Association in July, high priority was given to the problem of premature fruit drop and it was also agreed that the number of fruit fly traps in the country should be increased as quickly as possible and that the possibility of using the sterile male technique should be further investigated; other projects approved were:-

1. Leaf and soil analysis and general fertilizer programmes.
2. Nematode survey
3. Citrus Weevils
4. Rootstock trials
5. Productivity trials.

XI ANIMAL HEALTH

The Animal Health situation in the country has remained favourable during the year. Screw worm, ticks and internal parasites still remain the greatest hazard to livestock production, although a much larger section of the farming community has been made to realize, the necessity for the regular spraying, worming and general observations to their livestock. The greatest drawback to livestock improvement is an adequate attention to pastures. The poor condition in which pastures are kept makes it inevitable, that even with proper worming etc. no great progress is made because without good nutritious food, no animal can make good weight gains. In the case of Central Farm, the health of the livestock has been exceptionally good, except for the confirmed infertility of the Red Poll bull which had been bought in Jamaica. In the case of pigs, there has been a substantial increase in piglets, and the mortality rate has been comparatively low, thus there has been a better distribution of quality animals to supply to farmers in the Districts. A stock of Swine fever vaccine has always been on hand to help in the case of an outbreak, but fortunately this did not occur. The isolated cases of vesicular stomatis took place over the country, but this was quickly taken care of by isolation and the use of lime and aureomycin Violet Spray. The situation regarding small animal practice is becoming more and more important, more and more people are taking a keen interest in the health of dogs and cats, thus we find that mainly in Belize City, small animal veterinary practice is important.

XII MECHANICAL SECTION

With large scale land clearing left in the hands of private contractors, the Mechanical Section of the Department was during the year concerned mainly with Government projects and small scale plowing, harrowing and bushhogging in the Districts. Work at Central Farm was carried out on improving the existing pastures, preparing areas for experimental plantings and general clearing of the area. The system of

working the tractors has remained basically the same as last year. The tractors are sent to the Agricultural Officer in charge of the District, and he is then responsible for the work in his District, and all collection of revenue. Repairs are carried out by the Mechanical Section staff. In cases where it is not economical to keep a tractor stationed in the District, the officer-in-charge requests the tractors from Central Farm as the need arises.

XIII ACKNOWLEDGEMENTS

Continued help and cooperation has been received from both official bodies, other Departments in Government and private individuals. This help is greatly appreciated.

Chief Agricultural Officer

TABLE XI

Yield of Corn Fertilizer Trial at Central Farm

in Cwt/Acs.

Codes	Block I	Block II	Block III	Block IV	Total	Average	SE
00	38.1	35.7	35.5	37.8	147.1	36.8	.66
01	42.7	30.3	38.9	39.3	151.2	37.8	2.64
02	41.5	39.9	37.0	31.1	149.5	37.4	2.28
03	28.4	29.8	36.9	31.5	126.6	31.7	2.22
10	31.8	29.2	35.8	30.6	127.4	31.9	1.42
11	36.8	35.8	29.2	38.3	140.1	35.0	2.13
12	46.6	37.8	35.1	41.1	160.6	40.1	2.46
13	32.8	36.6	31.6	34.8	135.8	33.9	1.10
20	34.0	28.7	37.8	38.9	139.4	34.9	2.30
21	40.7	27.3	41.1	31.6	140.7	35.2	3.42
22	35.8	32.8	38.2	34.6	141.4	35.4	1.13
23	37.5	43.7	29.2	41.3	151.7	37.9	3.19
30	38.1	39.7	30.9	39.9	148.6	37.1	2.12
31	34.5	41.3	34.0	34.6	144.4	36.1	1.73
32	33.0	37.5	35.1	42.0	147.6	36.4	1.91
33	43.1	46.9	35.7	47.3	173.0	43.2	2.69
Total	545.4	573.0	562.0	594.7	2,325.1	6.6	
Average	37.2	35.8	35.1	37.2		9.0	

TABLE XII

Number of Plants with Multiple Cobs Corn Fertilizer Trial - Central Farm

Code	Block I	Block II	Block III	Block IV	Total	Average	S.E.
00	0	0	2	2	4	1.00	.57
01	1	4	1	1	7	1.750	.75
02	1	2	0	1	4	1.00	.40
03	2	3	2	3	10	2.50	.28
10	1	3	2	3	9	2.25	.48
11	1	2	2	1	6	1.50	.28
12	3	1	1	4	9	2.25	.75
13	2	1	1	1	5	1.25	.25
20	5	3	1	2	11	2.75	.85
21	2	1	3	0	6	1.50	.81
22	1	1	2	3	7	1.75	.48
23	4	1	2	0	7	1.75	.85
30	1	1	3	3	8	2.00	.57
32	3	1	4	3	11	2.75	.633
33	9	3	3	2	17	4.25	1.59
Total	39	28	31	31	129		
Average	2.37	1.75	1.81	1.93	8.06		

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